

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of : Customer Number: 20277
Soichiro OGAWA : Confirmation Number: 1064
Application No.: 10/656,227 : Tech Center Art Unit: 1795
Filed: September 08, 2003 : Examiner: ECHELMEYER, Alix E.
For: FUEL CELL ASSEMBLY

TRANSMITTAL OF APPEAL BRIEF

Mail Stop Appeal Brief
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith is Appellant's Appeal Brief in support of the Notice of Appeal filed September 2, 2009. Please charge the Appeal Brief fee of \$540.00 to Deposit Account 500417.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due under 37 C.F.R. §§ 1.17 and 41.20, and in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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APPEAL BRIEF

Mail Stop Appeal Brief
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed September 2, 2009,
wherein Appellant appeals from the Primary Examiner's rejection of claims 15-25.

Real Party In Interest

This application is assigned to Nissan Motor Co., Ltd. by assignment recorded on September 8,
2003, at Reel 014490, Frame 0863.

Related Appeals and Interferences

Appellant is unaware of any related appeals and interferences.

Status of Claims

1. Claims canceled: 1-14.

2. Claims pending: 15-25.

3. Claims rejected: 15-25.
4. Claims on appeal: 15-25.

Status of Amendments

No amendments were filed after the final rejection of June 2, 2009.

Summary of Claimed Subject Matter

An aspect of the invention, per claim 15, is a fuel cell assembly mounted in a vehicle comprising a fuel cell stack comprising plural fuel cells stacked in a fixed direction and a pair of end plates which are stacked on both ends of the plural fuel cells (page 2, lines 6 to 8; and page 4, lines 1 to 2 of the written description). A stacking bolt penetrates the pair of end plates in the fixed direction and maintains the plural fuel cells in a stacked state (page 4, lines 1 to 6 of the written description). A case houses the fuel cell stack, and a bolt penetrates an end plate and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located exterior to the case to support the fuel cell stack to the case (page 2, lines 8 to 9; and page 5, lines 11 to 18 of the written description).

Another aspect of the invention, per claim 18, is a fuel cell assembly mounted in a vehicle comprising a fuel cell stack comprising plural fuel cells stacked in a fixed direction (page 2, lines 6 to 8 of the written description). A stacking bolt is disposed along the fixed direction to maintain the plural fuel cells in a stacked state (page 4, lines 1 to 6 of the written description). A fluid supply/discharge block is fitted to an end of the fuel cell stack to supply fluid from outside to each of the plural fuel cells and discharge fluid from each of the plural fuel cells to outside (page 3, lines 21 to 24; and page 6, line 14 to page 7, line 8 of the written description). A case houses the fuel cell stack and the fluid supply/discharge block, and a bolt penetrates the fluid supply/discharge block and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located

exterior to the case to support the fuel cell stack to the case (page 2, lines 8 to 9; and page 5, lines 11 to 18 of the written description).

Grounds of Rejection To Be Reviewed By Appeal

1. Claims 15-23 and 25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugita et al. (US 6,455,179) in view of Tanaka et al. (U.S. Pat. No. 6,803,142) and Rock (US 7,045,245).
2. Claim 24 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugita et al. in view of Tanaka et al. and Rock, and further in view of Groppel (US 3,856,573).

Argument

1 Rejection Under 35 U.S.C. § 103(a) as being unpatentable over Sugita et al. in view of Tanaka et al. and Rock

Claims 15-17

Examiner's Position:

The Examiner asserted that Sugita et al. teach a fuel cell system having two fuel cell stacks with end plates at both ends (16, 24) for use in a vehicle. The Examiner averred that stacking bolts (154) maintain the cells in a stack. The Examiner acknowledged that Sugita et al. fail to teach a case and that the bolts holding the fuel cell stack to the vehicle penetrate an end plate and the case. The Examiner asserted that Tanaka et al. teach a fuel cell having a housing case (10) that provides mounts (123, 130) for fixing the end plates of the fuel cell and case using bolts (104), and that the mounts give the housing structure that allows it to withstand the load concentration on the mount. The Examiner opined that it would be desirable to use the case of Tanaka et al. to provide protection to the fuel cell

from the outside environment and that it would be desirable to use the mounts of Tanaka et al. to allow the case to withstand the load concentration on the mount.

The Examiner admitted that Sugita et al. in view of Tanaka et al. fail to teach that both ends of the bolt are located exterior to the case. The Examiner asserted that Rock teaches that bolts are used on both sides of the end plate parallel to the plates within the fuel cell stack, in order to secure the case to the end plates. The Examiner considered it obvious to use bolts on both sides of the end plate in order to secure the case to the end plates. The Examiner further admitted that Sugita et al. in view of Tanaka et al. and Rock fail to teach that the bolts on both sides of the end plate are a single bolt, such that both ends of the bolt are located on the exterior of the case. The Examiner concluded that it would have been obvious to make the two bolts on either side of the end plates of Rock into a single bolt extending through the end plate since such a modification would involve fewer parts and allow for better securing of the case to the fuel cell stack.

Appellant's Position:

Sugita et al., Tanaka et al., and Rock, whether taken in combination, or taken alone, do not suggest the claimed fuel cell assembly because the cited references do not disclose a fuel cell stack comprising plural fuel cells stacked in a fixed direction, a case housing the fuel cell stack, and a bolt which penetrates an end plate and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located exterior to the case to support the fuel cell stack to the case, as required by claim 15.

The bolt penetrating the end plate and the case in a direction perpendicular to the fixed direction, according the present invention, provides improved support of the structure of the fuel cell stack against a horizontal load acting between the fuel cell stack and the case not provided by fuel cell assembly of Sugita et al., Tanaka et al., and Rock.

The present invention will be contrasted with Sugita et al. by referring to an embodiment depicted in Fig. 1 of the present invention and Fig. 2 of Sugita et al. Claim 15 requires that the bolt (8) penetrates an end plate (5) and the case (3, 11) in a direction perpendicular to the fixed direction such that both ends of the bolt are located exterior to the case to support the fuel cell stack to the case.

In Sugita et al., the bolt (166a, b) penetrates the bracket (162a, b), but does not penetrate the end plate (24). Further, Sugita et al. do not disclose a case housing the fuel cell stack, and hence does not disclose a bolt which penetrates the housing.

Tanaka et al. do not cure the deficiencies of Sugita et al. In Tanaka et al., the bolt (104) penetrates the bottom of the case (10) and reaches the interior of the end plate (62). However, the bolt (104) does not penetrate the end plate (62) such that both ends of the bolt are located exterior to the case. Thus, both ends of the bolt are not located on the exterior of the end plate (62).

Rock does not cure the deficiencies of Sugita et al. In Rock, both ends of the Examiner-asserted bolts (80) are not located on the exterior of the case and the bolts (80) do not support the fuel cell stack (20) to the case.

Appellant traverses the Examiner's conclusion that it would have been obvious to one of skill in the art to make two bolts on either side of the end plate, such as seen in Figure 2 of Rock, into a single bolt extending through the end plate.

Apparently, the Examiner regards Rock's wall (36) as being equivalent to the case (3) of the present invention. Rock's walls (36) are constituted by a pair of plates fitted onto the side faces of the

fuel cell stack (20) and the end plates (45). Rock's walls (36) are not a self-supporting structure, unlike the case (3) of the present invention (see Fig. 1). The walls (36) simply cover the fuel cell stack (20) but do not support the fuel cell stack (20), unlike the present invention. Rock's wall (37), is therefore, not comparable with the case (3) of the present invention.

Further, in Rock, the hole (78) of the wall (36) for passing the bolt (80) is formed in a shape of a elongated slot, as can be seen in Fig. 1 and Fig. 3. The elongated slots (78) function to allow a large tolerance in relative positions of the end plates (45) and the walls (36) and do not function to allow a bolt passing through them to support the fuel cell stack (20) to the case. Hence the wall (36) does not prevent the end plate (45) from displacement in the stacking direction of the fuel cells. As shown in Fig. 3, the end plate (45) is not fixed to the wall (36) with respect to displacement in the stacking direction of the fuel cells. The combination of the wall (36) and the bolt (80) penetrating the wall (36) does not support the fuel cell stack in the stacking direction of the fuel cells. Therefore, even if the two bolts (80) of Rock are replaced by the bolt (7, 8) of the present invention, the case would not be better secured to the fuel cell stack, as alleged by the Examiner, and the supporting structure of the fuel cell stack in the stacking direction of the fuel cells would not be enhanced.

Considering that the bolt (7, 8) of the present invention has a function to support the end plate, the bolt (7, 8) of the present invention is not suggested by the bolts (80) of Rock, which merely attach the walls (36) to the end plates (45).

Because the functions of the bolt (7, 8) of the present invention and the bolt (80) of Rock are entirely different, the bolt (7, 8) of the present invention does not correspond to forming in one piece an article which was formerly formed in two pieces, as asserted by the Examiner. Contrary to the Examiner's assertions, it is readily apparent that the Examiner's basis for asserting that it would have been obvious to form in one piece an article which was formerly formed in two pieces, is **not** rooted in

the MPEP § 2144.04(V)(B), but rather is rooted in impermissible hindsight reasoning in view of Appellant's disclosure. As explained above, the purpose of Rock's bolts (80) is merely to attach the end plates (45) to the walls (36) to form an outer covering of the fuel cell stack, not to support the fuel cell stack. In view of Figs. 2 and 3 of Rock, one of ordinary skill in this art would not have been motivated to replace two relatively small bolts, with a relatively much larger bolt which passes entirely through the end plate. One of ordinary skill in this art, would immediately recognize that such a large bolt would add to the cost and complexity of the fuel cell stack of Rock with no discernible benefit. The much longer bolt required to pass through the entire end plate would clearly cost much more than the relatively smaller bolts; and washers and nuts would be required, too. Instead of replacing two parts with one, as alleged by the Examiner, in the Examiner's configuration five parts are replacing two parts, as washers and nuts would be required on both ends to secure the bolt. There would be increased complexity in registering the single, long bolt with the end plates and walls, and increased complexity in securing both ends with washers and nuts. In addition, the end plates would have to be redesigned to accommodate the bolt passing all the way through. Further, as the sole purpose of the bolts (80) in Rock are to attach the end plate (45) and walls (36), and not to support the fuel cell stack, the long bolts proposed by the Examiner, would clearly be overkill and inappropriate for the intended function of Rock's bolts.

It is readily apparent that the Examiner's asserted rationale for combining Sugita et al., Tanaka et al., and Rock is based on impermissible hindsight reasoning in view of Appellant's disclosure.

Therefore, neither Sugita et al., Tanaka et al., nor Rock disclose a bolt which penetrates an end plate and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located on the exterior of the case to support the fuel cell stack to the case, as required by claim 15.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 22006); *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Sugita et al., Tanaka et al., or Rock to modify the fuel cell assembly of Sugita et al. so that it includes a bolt which penetrates an end plate and a case in a direction perpendicular to the fixed direction such that both ends of the bolt are located on the exterior of the case to support the fuel cell stack to the case, as required by claim 15, nor does common sense dictate such modifications. The Examiner has not provided any evidence that there would be any obvious benefit in making such modifications of Sugita et al. See *KSR Int'l Co. v. Teleflex, Inc.*, 500 U.S. ____ (No. 04-1350, April 30, 2007) at 20. Rather there appear to many shortcomings to the asserted modifications, as explained above.

The **only** teaching of the claimed fuel cell assembly is found in Appellant's disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on appellant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claims 18-23 and 25

Examiner's Position:

The Examiner asserted that Sugita et al. teach a fuel cell system having two fuel cell stacks with end plates at both ends (16, 24) for use in a vehicle. The Examiner averred that stacking bolts

(154) maintain the cells in a stack. The Examiner maintained that Sugita et al. disclose a fluid/discharge block (28). The Examiner acknowledged that Sugita et al. fail to teach a case and that the bolts holding the fuel cell stack to the vehicle penetrate an end plate and the case. The Examiner asserted that Tanaka et al. teach a fuel cell having a housing case (10) that provides mounts (123, 130) for fixing the end plates of the fuel cell and case using bolts (104), and that the mounts give the housing structure that allows it to withstand the load concentration on the mount. The Examiner opined that it would be desirable to use the case of Tanaka et al. to provide protection to the fuel cell from the outside environment and that it would be desirable to use the mounts of Tanaka et al. to allow the case to withstand the load concentration on the mount.

The Examiner admitted that Sugita et al. in view of Tanaka et al. fail to teach that both ends of the bolt are located exterior to the case. The Examiner asserted that Rock teaches that bolts are used on both sides of the end plate parallel to the plates within the fuel cell stack, in order to secure the case to the end plates. The Examiner considered it obvious to use bolts on both sides of the end plate in order to secure the case to the end plates. The Examiner further admitted that Sugita et al. in view of Tanaka et al. and Rock fail to teach that the bolts on both sides of the end plate are a single bolt, such that both ends of the bolt are located on the exterior of the case. The Examiner concluded that it would have been obvious to make the two bolts on either side of the end plates of Rock into a single bolt extending through the end plate since such a modification would involve fewer parts and allow for better securing of the case to the fuel cell stack.

Appellant's Position:

Sugita et al., Tanaka et al., and Rock, whether taken in combination, or taken alone, do not suggest the claimed fuel cell assembly because the cited references do not disclose a fuel cell stack

comprising plural fuel cells stacked in a fixed direction, a fluid supply/discharge block, a case housing the fuel cell stack and the fluid supply/discharge block, and a bolt which penetrates the fluid supply/discharge block and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located exterior to the case to support the fuel cell stack to the case, as required by claim 18.

The bolt penetrating the fluid supply/discharge block in a direction perpendicular to the fixed direction, according the present invention, provides improved support of the structure of the fuel cell stack against a horizontal load acting between the fuel cell stack and the case not provided by fuel cell assembly of Sugita et al., Tanaka et al., and Rock.

The present invention is contrasted with Sugita et al. by referring to an embodiment depicted in Fig. 1 of the present invention and Fig. 2 of Sugita et al. Claim 18 requires that the bolt (7) penetrates the fluid supply/discharge block (6) and the case (3, 11) in a direction perpendicular to the fixed direction such that both ends of the bolt are located exterior to the case to support the fuel cell stack to the case.

In Sugita et al., the bolt (166a, b) penetrates the bracket (162a, b), but does not penetrate the fluid supply/discharge block (28). Further, Sugita et al. do not disclose a case housing the fuel cell stack and the fluid supply/discharge block, and hence does not disclose a bolt which penetrates the housing.

Tanaka et al. do not cure the deficiencies of Sugita et al. In Tanaka et al., the bolt (104) penetrates the bottom of the case (10) and reaches the interior of the end plate (62). However, the bolt (104) does not penetrate the end plate (62) such that both ends of the bolt are located exterior to the case. Thus, both ends of the bolt are not located on the exterior of the end plate (62).

Rock does not cure the deficiencies of Sugita et al. In Rock, both ends of the Examiner-

asserted bolts (80) are not located on the exterior of the case and the bolts (80) do not support the fuel cell stack (20) to the case.

Appellant traverses the Examiner's conclusion that it would have been obvious to one of skill in the art to make two bolts on either side of the end plate, such as seen in Figure 2 of Rock, into a single bolt extending through the end plate.

Apparently, the Examiner regards Rock's wall (36) as being equivalent to the case (3) of the present invention. Rock's walls (36) are constituted by a pair of plates fitted onto the side faces of the fuel cell stack (20) and the end plates (45). Rock's walls (36) are not a self-supporting structure, unlike the case (3) of the present invention (see Fig. 1). The walls (36) simply cover the fuel cell stack (20) but do not support the fuel cell stack (20), unlike the present invention. Rock's wall (37), is therefore, not comparable with the case (3) of the present invention.

Further, in Rock, the hole (78) of the wall (36) for passing the bolt (80) is formed in a shape of a elongated slot, as can be seen in Fig. 1 and Fig. 3. The elongated slots (78) function to allow a large tolerance in relative positions of the end plates (45) and the walls (36) and do not function to allow a bolt passing through them to support the fuel cell stack (20) to the case. Hence the wall (36) does not prevent the end plate (45) from displacement in the stacking direction of the fuel cells. As shown in Fig. 3, the end plate (45) is not fixed to the wall (36) with respect to displacement in the stacking direction of the fuel cells. The combination of the wall (36) and the bolt (80) penetrating the wall (36) does not support the fuel cell stack in the stacking direction of the fuel cells. Therefore, even if the two bolts (80) of Rock are replaced by the bolt (7, 8) of the present invention, the supporting structure of the fuel cell stack in the stacking direction of the fuel cells would not be enhanced.

Considering that the bolt (7, 8) of the present invention has a function to support the fluid supply/discharge block in the case, the bolt (7, 8) of the present invention is not suggested by the bolts

(80) of Rock, which merely attach the walls (36) to the end plates (45).

Because the functions of the bolt (7, 8) of the present invention and the bolt (80) of Rock are entirely different, the bolt (7, 8) of the present invention does not correspond to forming in one piece an article which was formerly formed in two pieces, as asserted by the Examiner. Contrary to the Examiner's assertions, it is readily apparent that the Examiner's basis for asserting that it would have been obvious to form in one piece an article which was formerly formed in two pieces, is **not** rooted in the MPEP § 2144.04(V)(B), but rather is rooted in impermissible hindsight reasoning in view of Appellant's disclosure. As explained above, the purpose of Rock's bolts (80) is merely to attach the end plates (45) to the walls (36) to form an outer covering of the fuel cell stack, not to support the fuel cell stack. In view of Figs. 2 and 3 of Rock, one of ordinary skill in this art would not have been motivated to replace two relatively small bolts, with a relatively much larger bolt which passes entirely through the end plate. One of ordinary skill in this art, would immediately recognize that such a large bolt would add to the cost and complexity of the fuel cell stack of Rock with no discernible benefit. The much longer bolt required to pass through the entire end plate would clearly cost much more than the relatively smaller bolts; and washers and nuts would be required, too. Instead of replacing two parts with one, as alleged by the Examiner, in the Examiner's configuration five parts are replacing two parts, as washers and nuts would be required on both ends to secure the bolt. There would be increased complexity in registering the single, long bolt with the end plates and walls, and increased complexity in securing both ends with washers and nuts. In addition, the fluid supply/discharge block would have to be redesigned to accommodate the bolt passing all the way through. Further, as the sole purpose of the bolts (80) in Rock are to attach the end plate (45) and walls (36), and not to support the fuel cell stack, the long bolts proposed by the Examiner, would clearly be overkill and inappropriate for the intended function of Rock's bolts.

It is readily apparent that the Examiner's asserted rationale for combining Sugita et al., Tanaka et al., and Rock is based on impermissible hindsight reasoning in view of Appellant's disclosure. In addition to the hindsight reasoning employed in combining Rock with Sugita et al. and Tanaka et al., hindsight reasoning was also used in combining Tanaka et al. with Sugita et al. The Examiner noted that Tanaka et al. teach that mounts (123, 130) give the housing structure that allows it to withstand the load concentration on the mount. The Examiner then takes an unsupported leap of logic to conclude that it would be desirable for the bolts of Sugita et al. to penetrate the supply block instead of a bracket since it would provide more support for the fuel cell system by changing the load concentration, as Tanaka et al. teach the importance of load concentration (pages 4-5 of Final Office Action). The Examiner's position is totally unsupported by the references. Tanaka et al. discuss positioning a reinforcement member (300) about a mount (82) to reduce the load concentration on the mount (82). There is no suggestion at all in Tanaka et al. of bolts penetrating the supply block to reduce the load concentration.

Therefore, neither Sugita et al., Tanaka et al., nor Rock disclose a bolt which penetrates the fluid supply/discharge block and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located on the exterior of the case to support the fuel cell stack to the case.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006); *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Sugita et al., Tanaka et al., or Rock to modify the fuel cell assembly of Sugita et al.

so that it includes a bolt which penetrates a fluid supply/discharge block and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located on the exterior of the case to support the fuel cell stack to the case, as required by claim 18, nor does common sense dictate such modifications. The Examiner has not provided any evidence that there would be any obvious benefit in making such modifications of Sugita et al. *See KSR Int'l Co. v. Teleflex, Inc.*, 500 U.S. ____ (No. 04-1350, April 30, 2007) at 20. Rather there appear to many shortcomings to the asserted modifications, as explained above

The **only** teaching of the claimed fuel cell assembly is found in Appellant's disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

2. Rejection Under 35 U.S.C. § 103(a) as being unpatentable over Sugita et al. in view of Tanaka et al. and Rock, and further in view of Groppel

The Examiner's Position:

The Examiner acknowledged that Sugita et al., Tanaka et al., and Rock fail to teach that the fluid supply/discharge block is made of an electrically nonconductive material. The Examiner asserted that Groppel teaches plastic channels for supply and discharge of reactants to a fuel cell. The Examiner concluded that it would have been obvious to use plastic channel as the piping materials in Sugita et al. since plastic materials would be more resistant to chemical wear by harsh chemicals in fuel cell systems.

Appellant's Position:

The combination of Groppel with Sugita et al., Tanaka et al., and Rock does not suggest the claimed fuel cell assemblies because Groppel does not cure the deficiencies of Sugita et al., Tanaka et al., and Rock. Groppel does not suggest a bolt which penetrates the fluid supply/discharge block and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located on the exterior of the case to support the fuel cell stack to the case, as required by claim 18.

In addition, the Examiner has no basis for asserting that plastic materials would be more resistant to harsh chemicals in fuel cell systems. The Examiner has not identified any such harsh chemicals. Chemical resistance depends on the particular plastic and the particular chemicals at issue. Depending on the particular plastic and harsh chemical, the plastic may offer no chemical resistance, and may in fact react with the "harsh chemical." Furthermore, some common metal alloys, such as stainless steel offer superior resistance to many "harsh chemicals." Therefore, there is no basis for the Examiner's asserted rationale for combining Groppel with Sugita et al., Tanaka et al., and Rock.

Conclusion

Based upon the arguments submitted *supra*, Appellant respectfully submits that the Examiner's rejections under 35 U.S.C. § 103 are not legally viable. Appellant, therefore, respectfully solicits the Honorable Board to reverse the Examiner's rejection of claims 15-23 and 25 as being unpatentable as evidenced by Sugita et al., Tanaka et al., and Rock; and claim 24 as being unpatentable as evidenced by Sugita et al., Tanaka et al., Rock, and Groppel.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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CLAIMS APPENDIX

15. A fuel cell assembly mounted in a vehicle, comprising:

a fuel cell stack comprising plural fuel cells stacked in a fixed direction and a pair of end plates which are stacked on both ends of the plural fuel cells;

a stacking bolt which penetrates the pair of end plates in the fixed direction and maintain the plural fuel cells in a stacked state;

a case housing the fuel cell stack; and

a bolt which penetrates an end plate and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located on the exterior of the case to support the fuel cell stack to the case.

16. The fuel cell assembly as defined in claim 15, wherein the pair of end plates comprise a first plate made of an electrically conducting material, and the fuel cell assembly further comprises an insulating member which electrically insulates the bolt which penetrates an end plate and the case in a direction perpendicular to the fixed direction from the first plate.

17. The fuel cell assembly as defined in claim 15, further comprising a rubber mount gripped by a bracket fixed to the case and a bracket fixed to the vehicle.

18. A fuel cell assembly mounted in a vehicle, comprising:

a fuel cell stack comprising plural fuel cells stacked in a fixed direction;

a stacking bolt disposed along the fixed direction to maintain the plural fuel cells in a stacked state; and

a fluid supply/discharge block fitted to an end of the fuel cell stack to supply fluid from outside to each of the plural fuel cells and discharge fluid from each of the plural fuel cells to outside;

a case housing the fuel cell stack and the fluid supply/discharge block; and

a bolt which penetrates the fluid supply/discharge block and the case in a direction perpendicular to the fixed direction such that both ends of the bolt are located on the exterior of the case to support the fuel cell stack to the case.

19. The fuel cell assembly as defined in claim 18, wherein the fuel cell assembly further comprises a first plate supporting one end of the fuel cell stack, a second plate fixed to the other end of the fuel cell stack, and the fluid supply/discharge block is in close contact with the second plate via a gap which permits displacement of the second plate in the fixed direction.

20. The fuel cell assembly as defined in claim 19, further comprising an expansion/contraction mechanism comprising a depression formed in the fluid supply/discharge block, and a projection formed in the second plate and inserted in the depression.

21. The fuel cell assembly as defined in claim 20, wherein the expansion/contraction mechanism further comprises a passage which causes the fluid to flow through the projection between the fluid supply/discharge block and the second plate, and a seal member interposed between the projection and the depression.

22. The fuel cell assembly as defined in claim 19, wherein the second plate is made of an electrically conducting material.

23. The fuel cell assembly as defined in claim 19, wherein the fuel cell stack comprises two stack units arranged in parallel, the stack units are electrically connected in series via the second plate, the case comprises a coolant inlet and outlet, and the fluid supply/discharge block has a supply passage disposed parallel to the second plate which distributes coolant supplied to the inlet between the stack units, and a discharge passage disposed parallel to the second plate which recovers and leads coolant which has cooled the stack units to the outlet.

24. The fuel cell assembly as defined in claim 19, wherein the fluid supply/discharge block is made of an electrically nonconductive material.

25. The fuel cell assembly as defined in Claim 18, further comprising a rubber mount gripped by a bracket fixed to the case and a bracket fixed to the vehicle so as to support the case in the vehicle.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.